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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/528,725

03/22/2005

Alastair Robert Buckley

BHJ8USA

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11/30/2006

HOWSON AND HOWSON  
SUITE 210  
501 OFFICE CENTER DRIVE  
FT WASHINGTON, PA 19034

EXAMINER

HINES, ANNE M

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |  |  |
|------------------------------|-------------------------------|--|--|
| <b>Office Action Summary</b> | Application No.<br>10/528,725 | Applicant(s)<br>BUCKLEY, ALASTAIR ROBERT |  |
|                              | Examiner<br>Anne M. Hines     | Art Unit<br>2879                         |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3,9,10 and 19-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,9,10 and 19-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/3/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 9, 10, 19, and 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakai et al. (EP 1199909 A9) (of record).

Regarding claim 1, Sakai discloses an organic light emitting diode device having a passivation layer comprising boron oxide (Pages 17-18, Paragraphs [0164]-[0165]; Page 16, Paragraph [0145]).

Regarding claim 2, Sakai further discloses wherein the device comprises a substrate, a layer of organic light emitting material, and a transparent cathode comprising a layer of material with a work function less than 4 eV (Pages 17-18, Paragraphs [0164]-[0165]; Page 16, Paragraph [0140]; Figs. 5 and 6).

Regarding claim 9, Sakai discloses a method of manufacturing an organic light emitting diode device, comprising depositing a passivation layer comprising boron oxide on the device (Pages 17-18, Paragraphs [0164]-[0165]; Page 16, Paragraph [0145]; Fig. 6, 3).

Regarding claim 10, Sakai further discloses wherein the passivation layer is deposited by thermal evaporation (Page 16, Paragraphs [0145]-[0146]).

Regarding claim 19, Sakai discloses a passivation layer for an electronic device comprising boron oxide (Pages 17-18, Paragraphs [0164]-[0165]; Page 16, Paragraph [0145]).

Regarding claim 21, Sakai further discloses wherein the passivation layer directly overlies the layer of material with a work function less than 4 eV (Page 15, Paragraph [0137]; Figs. 5 and 6; Pages 17-18, Paragraphs [0164]-[0165]).

Regarding claim 22, Sakai further discloses wherein an encapsulation layer overlies the passivation layer (Pages 17-18, Paragraphs [0164]-[0165]—see sealing member; Figs. 5 and 6).

Regarding claim 23, Sakai further discloses wherein the encapsulating layer is SiO<sub>2</sub> (Page 13, Paragraph [0110]). Note that the Examiner understands that quartz is inherently SiO<sub>2</sub>.

Regarding claim 24, Sakai further discloses wherein the device further comprises sealing layers of adhesive and glass (Pages 17-18, Paragraphs [0164]-[0165]—see sealing member; Figs. 5 and 6; Page 13, Paragraph [0107]).

Claims 1-3, 9, 10, 19-22, 24, 26-29, and 32-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Stegamet (US 2004/0046500).

Regarding claim 1, Stegamet discloses an organic light emitting diode device having a passivation layer comprising boron oxide (Figs. 1 and 2; Page 2, Paragraph [0030]; Page 3, Paragraph [000051]; Page 5, Paragraph [0078]).

Regarding claim 2, Stegamet further discloses wherein the device comprises a substrate, a layer of organic light emitting material, and a transparent cathode comprising a layer of material with a work function less than 4 eV (Page 2, Paragraph [0030]; Page 2, Paragraph [0034]; Page 4, Paragraphs [0063]-[0064]).

Regarding claim 3, Stegamet further discloses wherein the material with a work function of less than 4 eV is calcium (Page 4, Paragraph [0064]).

Regarding claim 9, Stegamet discloses a method of manufacturing an organic light emitting diode device, comprising depositing a passivation layer comprising boron oxide on the device (Figs. 1 and 2; Page 2, Paragraph [0030]; Page 3, Paragraph [000051]; Page 5, Paragraph [0078]).

Regarding claim 10, Stegamet further discloses wherein the passivation layer is deposited by thermal evaporation (Page 5, Paragraph [0072]).

Regarding claim 19, Stegamet discloses a passivation layer for an electronic device comprising boron oxide (Figs. 1 and 2; Page 2, Paragraph [0030]; Page 3, Paragraph [000051]; Page 5, Paragraph [0078]).

Regarding claim 20, Stegamet further discloses wherein the light emitting material is a polymeric light emitting material (Page 3, Paragraph [0051]).

Regarding claim 21, Stegamet further discloses wherein the passivation layer directly overlies the layer of material with a work function less than 4 eV (Fig. 2, 260 and 271; Page 4, Paragraphs [0063]-[0064]; Page 5, Paragraph [0078]).

Regarding claim 22, Stegamet further discloses wherein an encapsulation layer overlies the passivation layer (Figs. 1 and 2; Page 1, Paragraph [0007]).

Regarding claim 24, Stegamet further discloses wherein the device further comprises sealing layers of adhesive and glass (Figs. 1 and 2; Page 1, Paragraph [0007]).

Regarding claim 26, Stegamet further discloses wherein the device comprises a substrate, a layer of organic light emitting material, and a transparent cathode comprising a layer of material with a work function less than 4 eV (Page 2, Paragraph [0030]; Page 2, Paragraph [0034]; Page 4, Paragraphs [0063]-[0064]).

Regarding claim 27, Stegamet further discloses wherein the passivation layer is deposited directly onto the layer of material with a work function less than 4 eV (Fig. 2, 260 and 271; Page 4, Paragraphs [0063]-[0064]; Page 5, Paragraph [0078]).

Regarding claim 28, Stegamet further discloses depositing an encapsulating layer onto the passivation layer (Figs. 1 and 2; Page 1, Paragraph [0007]).

Regarding claim 29, Stegamet further discloses wherein the encapsulating layer comprises glass (Figs. 1 and 2; Page 1, Paragraph [0007]). Note that the Examiner understands that glass is inherently SiO<sub>2</sub>.

Regarding claim 32, Stegamet further discloses wherein the device is sealed with an adhesive and glass (Figs. 1 and 2; Page 1, Paragraph [0007]).

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Regarding claim 33, Stegamet further discloses adapting the thickness of the passivation layer to energy of electrons, ions, or fields from which protection is required (Figs. 7 and 8; Page 6, Paragraph [0100]).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stegamet (US 2004/0046500) in view of Shi et al. (US 5998805).

Regarding claim 25, Stegamet teaches the invention of claim 24 but is silent regarding the type of adhesive. In the same field of endeavor, Shi teaches an adhesive for attaching a glass encapsulation layer to an organic electroluminescent device, like that of Stegamet, as epoxy resin in order to secure and align the upper substrate to the device closely (Column 7, line 65 to Column 8, line 12). Therefore, it would have been obvious to one of ordinary skill in the art to modify the invention of Stegamet to have the adhesive be epoxy resin in order to secure and align the upper substrate to the device closely, as disclosed by Shi.

Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stegamet (US 2004/0046500) in view of Tai et al. (US 6656611).

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Regarding claims 30 and 31, Stegamet teaches the invention of claim 28 including an encapsulation layer of  $\text{SiO}_2$ , but is silent regarding the method of forming the encapsulation layer. In the same field of endeavor of methods of forming  $\text{SiO}_2$  layers for organic electroluminescent devices, Tai teaches wherein  $\text{SiO}_2$  layers are suitably formed by either electron beam evaporation or sputtering in order to form the  $\text{SiO}_2$  through a vacuum deposition process (Column 5, lines 30-33). Therefore, it would have been obvious to one of ordinary skill in the art to modify the invention of Stegamet to have the encapsulation layer of  $\text{SiO}_2$  be formed through either electron beam evaporation or sputtering in order to form the  $\text{SiO}_2$  through a vacuum deposition process, as disclosed by Tai.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne M. Hines whose telephone number is (571) 272-2285. The examiner can normally be reached on Monday through Friday from 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anne M Hines  
Patent Examiner  
Art Unit 2879

*AmH*  
*11/22/06*

*msy*  
**MARICELI SANTIAGO**  
**PRIMARY EXAMINER**